Claims

1.   A mailbox for temporally storing messages which include a sequence of one or more data packets and which are being transferred between a plurality of locations, the mailbox including a main memory, an ancillary memory, and a control unit which is arranged:

to receive the messages from one of the locations,

to store at least the first data packet of the message in the ancillary memory and other data packets of the message in the main memory, and

in response to a read signal, to transmit a data packet from the ancillary memory to another location, and to replenish the ancillary memory by transferring a data packet to it from the main memory.

2.   A mailbox according to claim 1 in which the ancillary memory is a FIFO memory implemented as registers.

3.   A mailbox according to claim 1 in which the operation of transmitting the data packet from the ancillary memory is performed on the same clock cycle as the replenish operation.

4.   A mailbox according to claim 1, claim 2 or claim 3 in which the ancillary memory stores a number of data packets which is at least equal to the number of clock periods required by the mailbox to extract any data packet from the main memory.

5.   A mailbox according to any preceding claim including a plurality of ancillary memories, different ones of the ancillary memories being arranged to store data being transferred to different locations.

6.   A data processing system including a plurality of processors and a mailbox according to any preceding claim 1, a first of the processors being

arranged to transfer a message to the second processor by transmitting it as a series of data packets to the mailbox and sending a signal to the second processor to indicate the presence of the message in the mailbox, the second processor being arranged in response to send a read signal to the mailbox.

5   7.   A method for temporally storing messages which include a sequence of one or more data packets and which are being transferred between a plurality of locations, the method including:

receiving the messages from one of the locations,

storing at least the first data packet of the message in the ancillary
10   memory, and one or more other data packets of the message in the memory, and

in response to a read signal, transmitting data from the ancillary memory to another location, and replenishing the ancillary memory by transferring data to it from the main memory.

15   8.   A method for transferring a message between two processors using a mailbox having a main memory and an ancillary memory, the method including:

a first of the processors transmitting the message to a mailbox as a sequence of one or more data packets, and sending an interrupt signal to a
20   second of the processors;

the mailbox receiving the data packets, storing at least the first data packet of the message in the ancillary memory, and other data packets of the message in the main memory,

the second of the processors in response to the interrupt signal
25   sending a read signal to the mailbox, and

the mailbox in response to a read signal, transmitting data from the ancillary memory to second processor, and replenishing the ancillary memory by transferring data to it from the main memory.